United States Environmental Protection Agency
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ENERGY STAR® LABELED FURNACES

MECHANICAL EQUIPMENT IMPROVEMENTS

The U.S. Environmental Protection Agency's **ENERGY STAR® Program** promotes the use of high-efficiency technologies and equipment. ENERGY STAR labeled homes use at least 30% less energy than homes built to meet the national Model Energy Code while maintaining or improving indoor air quality. These fact sheets are designed to help consumers learn more about the energy-efficient improvements to their ENERGY STAR labeled homes.

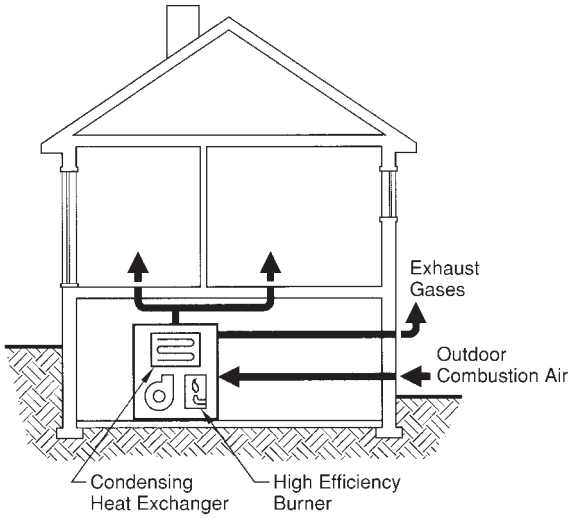
On average, space heating accounts for 33 percent of home energy use, but can increase to over 60 percent in the colder parts of the United States. Furnaces are a type of space heating equipment that burn fossil fuel (usually oil or natural gas) and transfer the heat to air. The hot air is then distributed through ducts to the living spaces within a residence. A thermostat controls the furnace to maintain an interior temperature set by the occupants.

Combustion of fossil fuels is a major source of air pollution. High-efficiency heating equipment generate less air pollution than standard efficiency equipment. That is why the U.S. Environmental Protection Agency (EPA) includes high-efficiency furnaces in its ENERGY STAR Labeling Program. This voluntary program encourages manufacturers to display the ENERGY STAR label on equipment that meet or exceed an energy-efficiency level set by EPA.

Prior to sale, the operating efficiencies of some furnaces are tested and each model is given an Annual Fuel Utilization Efficiency (AFUE) rating, which is a ratio of the heat produced to the energy consumed on an annual basis. Federal appliance standards require that furnaces have a minimum AFUE rating of 0.78 (at least 78 percent efficient). Furnaces with an ENERGY STAR label have a minimum AFUE of 0.90 (90 percent efficient) which is achieved by improvements such as a secondary (condensing) heat exchanger, two-stage burners, electronic ignition (no pilot light), and direct or power venting, as shown in Figure 1. Since ENERGY STAR labeled furnaces use 10 percent to 20 percent less energy then standard efficiency models, they can save up to $80 per year on home heating bills.

Besides ENERGY STAR labeled space heating equipment, ENERGY STAR labeled homes often have other energy-efficient features such as increased insulation, air sealing, high-performance windows and high-efficiency duct systems. Combinations of these features can often allow for the installation of smaller, less costly heating equipment.

FIGURE 1: ENERGY STAR LABELED FURNACE



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RESOURCES

The Consumer Guide to Home Energy Savings (Wilson and Morrill), 5th edition, 1996, available from the American Council for an Energy Efficient Economy at 510-549-9914

Homemade Money (Heede and the staff of RMI), 1995, available from the Rocky Mountain Institute at 970-927-3851

The following fact sheets are available by calling the U.S. Environmental Protection Agency's toll-free ENERGY STAR Hotline at 1-888-STAR-YES (1-888-782-7937):
Increased Insulation, Air Sealing, and ***High-Performance Windows.***

Space Heating Systems fact sheet available from the Energy Efficiency and Renewable Energy Clearinghouse (EREC), P.O. Box 3048, Merrifield, VA 22116, 1-800-DOE-EREC (1-800-363-3732)

For a current list of ENERGY STAR Furnaces, visit the Environmental Protection Agency's website at http://www.epa.gov/appdstar/hvac/prodfur.html

BENEFITS

Installing ENERGY STAR labeled furnaces can provide many benefits including:

Increased quality. ENERGY STAR labeled furnaces exceed the minimum efficiency levels established by the federal appliance standards. These improved efficiency levels are often achieved with better components and improved technologies. This can result in longer equipment life and extended manufacturer's warranties.

Improved safety. ENERGY STAR labeled furnaces are usually direct or power vented. This reduces the risk of "back-drafting" dangerous carbon monoxide gas into a house.

Lower utility bills. The average home owner spends approximately $400 per year on space heating. ENERGY STAR labeled furnaces can reduce this amount by $40 to $80, making ENERGY STAR labeled homes less expensive to operate.

Improved resale position. ENERGY STAR labeled furnaces can provide the many impressive benefits listed above including a safer, higher quality home with lower utility bills. These benefits can translate into higher resale value.